CLAIMS

1. A fractal structure comprising a plurality of regions different in fractal dimension characterizing the self-similarity.

2. The fractal structure according to claim 1 wherein the nature of phase transition occurring in the fractal structure is controlled by adjusting the ratio in volume of said plurality of regions relative to the entire volume of the fractal structure.

3. The fractal structure according to claim 1 wherein electron-to-electron correlation of an interactive electron system is controlled by adjusting the ratio in volume of said plurality of regions relative to the entire volume of the fractal structure.

4. The fractal structure according to claim 1 wherein the magnetization curve of ferromagnetic phase transition is controlled by adjusting the ratio in volume of said plurality of regions relative to the entire volume of the fractal structure.

5. The fractal structure according to claim 1 wherein the nature of chaos appearing in the fractal structure is controlled by adjusting the ratio in volume of said plurality of regions relative to the entire volume of the fractal structure.

6. The fractal structure according to claim 1 wherein quantum chaos in the electron state is

controll[redacted] by adjusting the ratio[redacted] volume of said plurality of regions relative to the entire volume of the fractal structure.

7. The fractal structure according to claim 1 wherein quantum chaos in the electron state is controlled by addition of a magnetic impurity.

8. The fractal structure according to claim 6 wherein quantum chaos in the electron state is controlled by addition of a magnetic impurity.

9. The fractal structure according to claim 1 wherein said fractal structure includes:

a first region having a first fractal dimension and forming a core; and

one or more second regions surrounding said first region and having a second fractal dimension lower than said first fractal dimension.

10. The fractal structure according to claim 1 wherein said first region and said second region exhibit a stellar shape as a whole.

11. The fractal structure according to claim 9 satisfying $D_{f1} > 2.7$ and $D_{f2} < 2.3$ where D_{f1} is said fractal dimension and D_{f2} is said second fractal dimension.

12. The fractal structure according to claim 9 satisfying $2.7 < D_{f1} \leqq 3$ and $1 \leqq D_{f2} < 2.3$ where D_{f1} is said fractal dimension and D_{f2} is said second fractal dimension.

satisfyi $2.9 \leqq D_{f1} \leqq 3$ and $1 \leqq D_{f2} < 2$ where D_{f1} is said fractal dimension and D_{f2} is said second fractal dimension.

14. A method of forming a fractal structure having a plurality of regions different in fractal dimension characterizing the self-similarity, comprising:

growing a fractal structure from one or more origins, and changing growth conditions with time in the growth process thereof such that different fractal dimensions are obtained.

15. The method of forming a fractal structure according to claim 14 wherein there are used growth conditions ensuring the first fractal dimension to be made from the growth start point of time until a first point of time, and growth conditions ensuring a second fractal dimension lower than the first fractal dimension to be made from the first point of time to a second point of time.

16. The method of forming a fractal structure according to claim 15 satisfying $D_{f1} > 2.7$ and $D_{f2} < 2.3$ where D_{f1} is said fractal dimension and D_{f2} is said second fractal dimension.

17. The method of forming a fractal structure according to claim 15 satisfying $2.7 < D_{f1} \leqq 3$ and $1 \leqq D_{f2} < 2.3$ where D_{f1} is said fractal dimension and D_{f2} is said second fractal dimension.

18. The method of forming fractal structure according to claim 15 satisfying $2.9 \leqq D_{f1} \leqq 3$ and $1 \leqq D_{f2} < 2.3$ where D_{f1} is said fractal dimension and D_{f2} is said second fractal dimension.